RECORD OF DECISION

WESTERN AVENUE
WATER QUALITY ASSURANCE REVOLVING FUND SITE

AVONDALE AND GOODYEAR, ARIZONA

June 18, 2018

ADEQ
Arizona Department
of Environmental Quality

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ACRONYMS AND ABBREVIATIONS

ACC	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
A.R.S.	Arizona Revised Statutes
AWQS	Aquifer Water Quality Standard
CAG	Community Advisory Group
COC	Contaminant of Concern
COG	City of Goodyear
COGPW	City of Goodyear Public Works
COG-01	City of Goodyear Production Well Number 01
EPA	United States Environmental Protection Agency
ERA	Early Response Action
ft bgs	feet below ground surface
FS	Feasibility Study
Hargis	Hargis + Associates, Inc.
MNA	Monitored Natural Attenuation
PCE	Tetrachloroethene
PGA	Phoenix-Goodyear Airport
PGAN	Phoenix Goodyear Airport-North Federal Superfund Site
PGAS	Phoenix Goodyear Airport-South Federal Superfund Site
PRAP	Proposed Remedial Action Plan
PRP	Potentially Responsible Party
RI	Remedial Investigation
RO	Remedial Objective
ROD	Record of Decision
Site	Western Avenue Water Quality Assurance Revolving Fund Registry Site
VOC	volatile organic compound
WQARF	Water Quality Assurance Revolving Fund
µg/L	microgram per liter

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AVONDALE AND GOODYEAR, ARIZONA

1.0 DECLARATION

1.1 Site Name and Location

This Record of Decision (ROD) was prepared for the Western Avenue Water Quality Assurance Revolving Fund (WQARF) Registry Site (Site), located in Avondale and Goodyear, Arizona (Figure 1). The Site occupies approximately 300 acres situated along Western Avenue in portions of the cities of Avondale and Goodyear. The Site is located within a mixed residential, commercial and industrial area. The Site is bounded by San Xavier Boulevard to the north, Third Street to the east, County Road 85 to the south, and Phoenix-Goodyear Airport (PGA)/Litchfield Road to the west (Figure 2). The Site was added to the WQARF Registry in December 1998 with an eligibility and evaluation score of 51 out of a possible 120.

1.2 Basis and Purpose

This ROD presents the Selected Remedy for the Site, chosen in accordance with applicable requirements in Title 18, Chapter 16 of the Arizona Administrative Code (A.A.C.). The process for selecting the remedy complied with Arizona Revised Statute (A.R.S.) §49-287.04. The Arizona Department of Environmental Quality (ADEQ), as the lead agency, has reviewed the remedy and determined that the selected remedial action for the contaminant of concern (COC) in groundwater will meet the Remedial Objectives (ROs) for the Site. This ROD describes the basis for the Selected Remedy and addresses all elements of A.A.C. R18-16-410 under the WQARF Program. The decision in this ROD is based upon previous activities and investigations conducted and performed at the Site and documented in the ADEQ Administrative Records file. The State of Arizona, acting by and through ADEQ, has selected the remedy detailed in this document.

1.3 Conceptual Site Model

The COC at the Site is tetrachloroethene (PCE) in Subunit A groundwater. The Conceptual Site model is presented in Figures 3 and 4. PCE-impacted groundwater was first discovered in the area as part of groundwater monitoring activities conducted at the adjacent Phoenix-Goodyear Airport South Federal Superfund Site (PGAS) in 1993. PCE was detected in monitor wells located upgradient (east) of PGAS.

ADEQ conducted a preliminary investigation (PI) of the Western Avenue area in 1994. The PI involved limited soil vapor sampling at two suspected source areas: 1) the City of Goodyear Public Works (COGPW) facility leaking underground storage tank site, and 2) the Western Avenue Dry Cleaners (ADEQ, 1995). Subsequently, a series of investigations were performed involving soil gas surveys, monitor well installations and groundwater monitoring. While these investigations focused on various commercial dry cleaning establishments known to have used PCE, concentrations in groundwater and soil never indicated a primary source of contamination.

A groundwater monitor well network presently comprising seven ADEQ monitor wells (MW-1, MW-2, MW-4, MW-5, MW-6, MW-7 and MW-8) and one City of Goodyear monitoring well (COG-MW3) has been established across the Western Avenue Site (Figure 2). Based on historical trends and the distribution of groundwater contamination, the primary source area may have been in the vicinity of monitor well MW-1. PCE has historically been detected in the groundwater at the Site at a high concentration of 89 micrograms per liter (µg/L) in monitoring well MW-1 in 1996. The Aquifer Water Quality Standard (AWQS) for PCE is 5 µg/L. Concentrations have declined over time ranging from non-detect at Western Avenue monitoring wells to approximately 15 µg/L in PGAS Subunit A monitoring well GMW-31A. PCE concentrations in all the Western Avenue monitoring wells are currently less than the AWQS and have been since 2016. Based upon PGAS and Phoenix Goodyear Airport North Federal Superfund Site (PGAN) monitor well data, residual Western Avenue PCE contamination has been detected west of Litchfield Road.

Vertically, the original occurrence of PCE in groundwater was confined within the upper portions of Subunit A. Subunit A is an unconfined aquifer that extends to an approximate depth of 130 feet below ground surface (ft bgs) and is a source of irrigation water in some areas (Hargis, 2014c). The City of Goodyear production well COG-01 is located within the Western Avenue site and screened in Subunit B and C from a depth of 175 to 195 feet bgs. According to information from the City of Goodyear, Well COG-01 has been shown to be a conduit of PCE from Subunit A to Subunits B/C due to the poor condition of the well (Figure 6). Time series sampling conducted by ADEQ in 2013 indicates that leakage of Subunit A and B groundwater into COG-01 during periods of non-pumping, results in low concentrations of PCE accumulating in the screened zone of COG-01. As COG-01 is pumped, the leaked Subunit A and B groundwater is removed, as evidenced by PCE concentrations decreasing to very low or non-detectable concentrations (Figure 7). Concentrations of PCE have never been detected above the AWQS in COG-01. The concentrations of PCE distributed across the site currently indicate a late-stage PCE plume in groundwater and do not indicate any continuing source that could impact City of Goodyear production well COG-01 above AWQS. Based on data from EPA and PGAS, residual concentrations of PCE are being captured by the PGAS treatment system and flow paths in the area do not influence City of Goodyear production well COG-01, but rather show flow toward the PGAS well field (see Figure 5). The modified selected remedy in this ROD will address Subunit A groundwater contaminated with PCE from the Western Avenue Site.

1.4 Selected Remedy

Monitored Natural Attenuation (MNA) was identified as the reference remedy in the Feasibility Study (FS) (Hargis, 2014a). The selected remedy for the Site, as specified in the Proposed Remedial Action Plan (PRAP) (Hargis, 2014b and 2014c) was MNA. MNA was proposed because no continuing PCE source(s) have been identified at the Site

and all Western Avenue wells do not contain PCE above the AWQS. Thus, source control is not necessary and was not included in the selected remedy. The overall site remedy has been modified from the PRAP to include groundwater monitoring with pump and treat capture by the PGAS groundwater treatment system because it was determined that the residual PCE concentration plume west of Litchfield Road was being captured by the PGAS groundwater capture system.

An element of the remedy in this ROD is the continued capture and treatment of residual PCE by the PGAS system for as long as The Goodyear Tire & Rubber Company operates the currently existing PGAS groundwater treatment system in connection with the remedial action at PGAS in a manner that captures and treats the residual PCE related to Western Avenue. Groundwater remediation will be conducted, either through the operation of the currently existing PGAS groundwater treatment system or through another treatment system operated by ADEQ. Groundwater remediation will take place until the RO is met and PCE is not present in Subunit A groundwater at concentrations greater than the AWQS. If The Goodyear Tire & Rubber Company discontinues the PGAS groundwater treatment system or ADEQ determines the currently existing PGAS groundwater treatment system is not effective in removing residual PCE from Western Avenue, ADEQ may perform additional remedial measures. Detailed information on the modified remedy is provided in Section 3.0 of this ROD. Upon completion of remedial actions, the monitoring wells associated with the Site will be abandoned in accordance with the PRAP and applicable Arizona Department of Water Resources (ADWR) requirements as promulgated in A.A.C. R12-15-816 and the Site will be delisted in accordance with A.R.S. §49-287.01(K).

1.5 Statutory Determinations

In May 2009, ADEQ completed the Remedial Investigation (RI) Report (GeoTrans, 2009) pursuant to A.R.S. §49-287.03 and A.A.C. 18-16-406. The RI Report:

- Established the nature and extent of the contamination and the potential sources thereof;
- Identified current and potential impacts to public health, welfare, and the environment;
- Identified current and reasonably foreseeable uses of land and waters of the State; and
- Obtained and evaluated information necessary for identification and comparison of alternative remedial actions.

In April 2014, the FS Report (Hargis, 2014a) was completed pursuant to A.R.S. §49-287.03 and A.A.C. 18-16-407. The FS, based on the information obtained during the RI, evaluated three different remedial options and selected a remedy for the Site. The FS Report:

- Provided for the development of a reference remedy and at least two alternative remedies which were capable of achieving all of the ROs;
- Insured that the reference remedy was based upon best engineering, geological, or hydrogeological judgment;

- Provided one alternative remedy that was more aggressive than the reference remedy; and
- Provided one alternative remedy that was less aggressive than the reference remedy.

In 2014, the original PRAP (Hargis, 2014b) and the revised PRAP (Hargis, 2014c) were completed pursuant to A.R.S. §49-287.04 and A.A.C. 18-16-408. Public comments on the original PRAP were solicited from April 25, 2014 through June 23, 2014. Public comments on the revised PRAP were solicited from October 7, 2014 through November 5, 2014. A responsiveness summary to public comments and questions regarding the PRAP is presented in Appendix A. The PRAP:

- Identified the boundaries of the Site;
- Described the proposed remedy and associated costs;
- Described how the remedy would achieve the ROs; and
- Described how the remedial goals and selection factors were evaluated.

Pursuant to A.R.S. §49-287.04 and A.A.C. 18-16-410, this ROD is the final administrative decision as defined under A.R.S. §41-1092. The selected remedy for the Site is monitoring and continued capture and treatment by the existing PGAS system, because it meets the following criteria as stipulated by A.R.S. §49-282.06:

- Adequately assures the protection of public health and welfare of the environment;
- To the extent practicable, provides for the control, management and cleanup of the Site COC maximizing beneficial use of the groundwater; and
- Is reasonable, necessary, cost-effective and technically feasible.

2.0 SITE BACKGROUND

2.1 Site Description

The Site occupies approximately 300 acres situated along Western Avenue in portions of the cities of Avondale and Goodyear, Arizona. From Western Avenue; the Site extends north to San Xavier Boulevard, east to Third Street; south to State Route 85; and west to the Phoenix-Goodyear Airport/Litchfield Road (Figure 2).

ADEQ has identified PCE as the COC in groundwater at the Site. Therefore the Site boundaries are generally defined by the historic occurrence of PCE in groundwater. Land use across the Site is a mix of residential, commercial, and industrial properties.

PCE-impacted groundwater was first discovered in the Site area as part of groundwater monitoring activities conducted at the adjacent PGAS in 1993. PCE was detected in monitor wells located upgradient (east) of PGAS. Increasing concentrations of PCE over time in these monitor wells indicated a potential upgradient source.

The ADEQ conducted a PI in 1994 that included limited soil vapor sampling at two potential source areas: 1) the COGPW facility leaking underground storage tank site, and 2) the Western Avenue Dry Cleaners (ADEQ, 1995). Two monitor wells were installed in 1995 to assess water quality north and east of PGAS. PCE was detected in groundwater samples collected from the two monitor wells. The Site was subsequently placed on the WQARF Registry in December 1998 with a score of 51 out of a possible 120.

2.2 Chronology of Site Activities

The detailed history of completed Site investigations and remedial actions are summarized in the RI Report, the FS Report and the PRAPs. The following provides a brief summary of the main events, investigation milestones and remedial actions for the Site.

1993: PCE was detected up gradient of PGAS. Monitor wells at PGAS showed increasing trends in PCE concentrations in shallow groundwater, indicating a potential up gradient source within the Site area.

1994: The ADEQ Site Assessment and Hydrology Unit conducted limited soil vapor sampling at the COGPW facility and also at Western Dry Cleaners (ADEQ, 1995). ADEQ conducted an investigation at the COGPW facility located on the southeast corner of Western Avenue and Litchfield Road. Analytical data indicated that PCE and/or other target compounds were not present in soil above the applicable method detection limits. Vapor sample results from both facilities did not detect a source for PCE contamination.

1995: Monitor wells MW-1 and MW-2 were installed by ADEQ to help characterize groundwater quality. Water use in the site was investigated and no private wells were noted within the Site boundaries, but City of Goodyear production well COG-01 is located within the Site boundaries.

1996: ADEQ initiated a comprehensive groundwater monitoring program at the Site. PCE was detected at a concentration of 87 µg/L in a groundwater sample collected from monitor well MW-1.

1998: The Site was placed on the WQARF Registry in December with a score of 51 out of a possible 120.

2000: ADEQ installed five additional monitor wells (MW-3 through MW-7) as part of an Early Response Action (ERA) evaluation.

2001: ADEQ conducted a soil vapor survey at the former Aladdin Dry Cleaners property (ADEQ, 2001). Results of the soil vapor survey indicated only minor concentrations of PCE.

2003: An Industrial Survey Report was completed as part of the RI to identify properties where PCE may have been used or disposed. Six former dry cleaning facilities were identified in the area. Additional field activities were conducted at Western Avenue Dry Cleaning and Aladdin Dry Cleaning. The results of the investigations indicated that the facilities did not represent a significant source of PCE contamination in soil or groundwater (GeoTrans, 2003).

2006: The highest concentration of PCE detected in groundwater during the March monitoring event was 3.2 µg/L at COGPW facility monitor well COG-MW3 (Figure 2). The Draft RI Report was submitted for public comment in August (GeoTrans, 2005). One comment was received during the 30-day comment period, but this comment did not require a change in the RI.

2007: The highest concentration of PCE detected in groundwater during the August monitoring event was 12 µg/L at monitor well MW-2. This is the only sampling event since April 1999, in which PCE was detected above its 5 µg/L AWQS in groundwater collected from MW-2.

2008: Monitor well MW-8 was installed by ADEQ north of well COG-01 to define the northern boundary of PCE-impacted groundwater.

2009: Groundwater samples were collected from Site monitor wells in January. The highest concentration of PCE in groundwater was 4.5 µg/L less than the AWQS of 5.0 µg/L at monitor well MW-2. The RI report was finalized with the issuance of the Proposed RO report (GeoTrans, 2009 and ADEQ, 2009). ADEQ began the FS phase.

2010: Groundwater samples were collected from Site monitor wells in May and November. The highest concentration of PCE in groundwater during these two events was 6.8 µg/L at monitor well MW-1.

2011: ITSI initiated an Area Between the Sites study (ITSI, 2013). The objectives of the study were to further define water level and water quality conditions in the area where the PGAN, PGAS, and Western Avenue sites meet.

Groundwater samples were collected from Site monitor wells in February, May, August, and November. The highest concentration of PCE in groundwater during the four 2011 events was 12.0 µg/L at monitor well MW-1 in November.

2012: Groundwater samples were collected from Site monitor wells in February, May, August, and November. Passive Diffusion Bag (PDB) samplers were placed at depths determined from the vertical profiling conducted at each well. The highest concentration of PCE in groundwater during the 2012 events was 6.59 µg/L at monitor well MW-1 in May. Verification sampling was conducted in June 2012 to verify VOC concentrations at selected wells during the May event. The results of the verification sampling and August 2012 sampling indicated that PCE concentrations were within historical ranges. A concentration of 6.2 µg/L was reported in November 2012 at MW-1. The Draft FS Work Plan was completed October 25, 2012.

2013: The results of the Area Between the Sites study were finalized in March. The results indicated that there was not enough information to connect PCE in PGAN to the Site. The highest concentration of PCE in groundwater during 2013 was 7.8 µg/L at monitor well MW-1 in May. PCE was not detected at concentrations greater than the AWQS at any other monitor wells.

ADEQ conducted a time-series groundwater test at well COG-01 during March and April 2013 (Figure 7). The purpose of the test was to help determine the source and nature of PCE detected in groundwater from well COG-01. The investigation determined that the low concentrations of PCE historical detected in well COG-01 groundwater are the result of well construction issues with the well. The low concentrations of PCE in groundwater caused by the well acting as a conduit are reduced then removed as well COG-01 is pumped. Groundwater samples collected during the time-series investigation also detected perchlorate in COG-01 at concentrations ranging from non-detect to 3.7 µg/L. A Draft Summary Report was completed on May 15, 2013 and shared with the Cities of Avondale and Goodyear. The Cities submitted comments and ADEQ addressed the Cities' comments in the Final Report dated November 1, 2013 (Hargis, 2013).

A draft of the FS Report was completed April 4, 2013 and shared with the Cities of Avondale and Goodyear. Comments submitted by the Cities were addressed in the draft FS report. The draft FS Report was presented at the November 7, 2013 Community Advisory Group (CAG) quarterly meeting.

2014: The final FS Report was prepared on April 23, 2014. ADEQ prepared a PRAP and issued it for public comment on April 24, 2014. ADEQ received comments from seven entities leading to the issuance of a Revised PRAP on October 7, 2014.

2015 to Present: On-going groundwater monitoring and PCE capture.

3.0 SELECTED REMEDY

The remedy proposed in the FS Report has been selected by this ROD, with minor modifications, as the remedy for the Site. The modification to the proposed remedy is the capture and treatment of residual PCE by the existing PGAS groundwater treatment system for as long as The Goodyear Tire & Rubber Company operates the currently existing PGAS groundwater treatment system in connection with the remedial action at PGAS in a manner that captures and treats the residual PCE related to Western Avenue. The remedy consists of MNA with groundwater capture and treatment. Groundwater monitoring will be conducted to determine the effectiveness of the PGAS treatment system in removing the residual PCE from Western Avenue during operation of the currently existing PGAS treatment system. Groundwater remediation will be conducted, either through the operation of the currently existing PGAS groundwater treatment system or through another treatment system operated by ADEQ until the RO is met and PCE is not present in Subunit A groundwater wells (EPA-MW-71A; EPA MW-72A; GMW-03; GMW-08; GMW-27A; GMW-31A; GMW-33A; EMW-08R; EMW-10R and E-17) at concentrations greater than the AWQS. If The Goodyear Tire & Rubber Company discontinues the PGAS groundwater treatment system or ADEQ determines the currently existing PGAS groundwater treatment system is not effective in removing residual PCE from Western Avenue, ADEQ may implement additional remedial measures.

MNA will consist of measuring water levels in the Western Avenue Subunit A monitor wells to confirm the direction and magnitude of the hydraulic gradient and collecting groundwater samples to confirm that PCE concentrations remain below the AWQS for PCE. The monitor well network for MNA will include the seven Subunit A monitoring wells currently being sampled by ADEQ (wells MW-1, MW-2 and MW-4 through MW-8). In addition, ADEQ will utilize data collected by PGAN (wells EPA MW-64A and EPA MW-68A through EPA MW-72A) and PGAS (wells GMW-03, GMW-08, GMW-27A, GMW-28A, GWM-31A, GMW33A, E-17, EMW-08R and EMW-10R) to monitor remedy progress downgradient of the Western Avenue WQARF Site (Table 1). The MNA monitor well network will also include monitoring and sampling of the City of Goodyear Production Well COG-01 and City of Goodyear monitor well COG-MW3 to assess the downward vertical migration of PCE from Subunit A to a deeper water bearing zone (Subunit C). The Western Avenue monitor wells and COG-01 will be sampled on a semi-annual basis for the first two years of monitoring and annually thereafter. ADEQ will coordinate with the Environmental Protection Agency (EPA) and PGAS and PGAN to ensure that the Western Avenue groundwater sampling and water level monitoring will be scheduled to coincide with PGAN and PGAS sampling schedules.

Groundwater samples from the Western Avenue wells will be collected utilizing PDB samplers for volatile organic compounds (VOCs) and HydraSleeve® samplers for geochemical parameters including pH, temperature, dissolved oxygen, reduction-oxidation potential, and electrical conductivity. The groundwater samples collected from COG-01 will be collected from the well discharge sampling port at a time when the well has been operating for at least 24 hours. The groundwater samples will be analyzed for VOCs by United States EPA Method 8260B. Reporting of the groundwater results will be completed on a semi-annual basis for the first two years and annually thereafter. Groundwater data will be reviewed after a period of two years to evaluate contaminant attenuation and, based on the review, the sampling and reporting frequency may be modified with approval by The Goodyear Tire & Rubber Company. Any change in sampling frequency will be scheduled with consideration for the PGAS and PGAN groundwater monitoring events.

Table 1. Monitoring Well Network for Sampling	
WELL	**OWNER**
MW-1	ADEQ
MW-2	ADEQ
MW-4	ADEQ
MW-5	ADEQ
MW-6	ADEQ
MW-7	ADEQ
MW-8	ADEQ
COG-MW3	City of Goodyear
COG-01	City of Goodyear
GMW-03	The Goodyear Tire & Rubber Company/PGAS
GMW-08	The Goodyear Tire & Rubber Company/PGAS
GMW-27A	The Goodyear Tire & Rubber Company/PGAS
GMW-28A	The Goodyear Tire & Rubber Company/PGAS
GMW-31A	The Goodyear Tire & Rubber Company/PGAS
GMW-33A	The Goodyear Tire & Rubber Company/PGAS
E-17	The Goodyear Tire & Rubber Company/PGAS
EMW-08R	The Goodyear Tire & Rubber Company/PGAS
EMW-10R	The Goodyear Tire & Rubber Company/PGAS
EPA MW-64A	PGAN
EPA MW-68A	PGAN
EPA MW 69A	PGAN
EPA MW-70A	PGAN
EPA MW-71A	PGAN
EPA MW-72A	PGAN

Operation and maintenance of the currently existing PGAS groundwater treatment system will be conducted by The Goodyear Tire & Rubber Company in connection with the remedial action at PGAS. ADEQ will provide technical support to The Goodyear Tire & Rubber Company, if requested. ADEQ will continue to share analytical data with EPA, PGAN and PGAS. To achieve remedial objectives for both the Western Avenue WQARF Site and PGAS, ADEQ will not impede, obstruct or otherwise hinder system operational priorities of The Goodyear Tire & Rubber Company.

3.1 Achievement of Remedial Objectives and Remedial Action Criteria

The COC present at the Western Avenue Site is PCE in Subunit A groundwater. The cleanup standard for PCE is the AWQS which is 5 µg/L. Groundwater remediation will be conducted until the RO is met and PCE is not present in PGAN Subunit A wells (EPA-MW-71A and EPA MW-72A) and PGAS Subunit A wells (GMW-03, GMW-27A, GMW-31A, GMW-33A, EMW-08R, EMW-10R and E-17) at concentrations greater than the AWQS.

VOC concentration data collected by PGAN and PGAS are also used to monitor the PCE concentration trends in the area where groundwater concentrations are currently greater than the AWQS. Monitoring data from six PGAS wells including Subunit A monitor wells EPA-MW-64A and EPA-MW-68A through EPA-MW-72A and nine PGAS Subunit A wells including GMW-03, GMW-27A, GMW-28A, GMW-31A, GMW-33A, EMW-08R, EMW-10R, GMW-

08 and E-17 will be used to monitor the PCE concentration trends to determine when remedial objectives have been met.

3.2 Contingencies

The selected remedy, as outlined in this ROD, does not include contingencies previously identified in the PRAP. These contingencies are no longer needed at the Site because PCE concentrations in all Site monitor wells have been less than the AWQS since 2016. Operation of the PGAS groundwater treatment system effectively captures residual PCE from the Site through extraction wells screened in Subunit A. Although the system was designed with the intent of remediation of impacted groundwater within the PGAS, it is expected that the system will continue to capture residual PCE from the Site for as long as it continues to operate.

Contingency costs are included if concentrations of PCE begin to increase in Subunit A monitor wells within the Site and further investigations are needed. Contingency costs have also been included for possible remedy acceleration (in-situ chemical oxidation or enhanced reductive dechlorination) if site conditions indicate a significant cost and/or time savings.

4.0 COMPLIANCE WITH APPLICABLE WQARF CRITERIA

A selected remedy must achieve the ROs established for the Site in accordance with A.A.C. R18-16-408(B)(3). The ROs for the Site were presented in the Remedial Objectives Report (ADEQ, 2009). The ROs were chosen with consideration for the current and reasonably foreseeable future uses of land and water of the State of Arizona that have been lost or impaired by a release of a hazardous substance. In accordance with A.A.C. R18-16-407, the ROs were evaluated in the FS Report. In accordance with A.A.C. R18-16-408 and A.R.S. §49-287.04, the ROs were considered in the development of the remedial action alternatives presented in the FS Report.

ROs were not established for land use because no regulatory standards were exceeded for soil or soil vapor at the Site (ADEQ, 2009). Additionally, ROs were not established for surface water because there are no surface water bodies or surface water usage identified at the Site (ADEQ, 2009).

The RO for groundwater at the Site (ADEQ, 2009) is *"To protect the supply of groundwater for municipal and irrigation use and for the associated recharge capacity that is threatened by contamination emanating from the Western Avenue WQARF Site. To restore, replace or otherwise provide for the groundwater supply lost due to contamination associated with the Western Avenue WQARF Site. This action will be needed for as long as the need for the water exists, the resource remains available and the contamination associated with the Western Avenue WQARF Site prohibits or limits groundwater use."*

The selected remedy (MNA with groundwater capture and treatment) is capable of achieving the Site RO. Groundwater capture and treatment will be conducted until the RO is met and PCE is not present in Subunit A groundwater wells (EPA-MW-71A; EPA MW-72A; GMW-03; GMW-08; GMW-27A; GMW-31A; GMW-33A; EMW-08R; EMW-10R and E-17) at concentrations greater than the 5 µg/L AWQS for PCE. Accomplishment of the RO will be measured by comparing concentrations of PCE detected in Subunit A groundwater to the AWQS. The detection of PCE concentrations in groundwater less than the AWQS will indicate accomplishment of the RO.

Data gathered at the Site indicate that current conditions will continue to achieve the RO for the Site. Specifically, data indicate that:

- There is no continuing source of PCE at the Site;
- Concentrations of PCE in Subunit A groundwater have significantly decreased during the last 15 years and are expected to continue declining due to the natural physical, geochemical, and biological processes present in the aquifer system;
- As long as The Goodyear Tire & Rubber Company operates the currently existing groundwater treatment system, in connection with the remedial action at PGAS that captures and treats the residual PCE related to Western Avenue; and
- No PCE impacted groundwater from the Site is present east of Litchfield Road.

The proposed remedy is to remediate Subunit A groundwater within an acceptable timeframe. Based on the current trends at the Site, PCE concentrations are expected to be consistently less than the AWQS in less than 10 years (Hargis, 2014b). However, the costs for the remedy were estimated using a time-frame of 15 years. This time-frame is anticipated to be more than adequate for natural attenuation processes and capture and treatment

to reduce PCE concentrations to less than the AWQS, and for monitoring to confirm that PCE concentrations do not rebound.

Monitoring with capture and treatment will achieve the RO and be protective of public health by:

- Allowing the City of Goodyear to utilize groundwater at the Site (as needed); and
- Confirming that PCE concentrations remain below the AWQS and that the site RO is continually met; and
- Reducing the PCE concentrations in Subunit A which will decrease the potential risk of groundwater contamination to the deeper water-bearing zone (Subunit C) used for the City of Goodyear Production Well COG-01.

4.1 Compliance with Arizona Administrative Code

The Site was added to the WQARF Registry in December 1998 with an eligibility and evaluation score of 51 out of a possible 120. In 2001, ADEQ published a notice of availability, in accordance with A.A.C. R18-16-403, that informed community members and interested parties that a scope of work, a fact sheet, and the outline of the community involvement plan was available for review and comment. The fact sheet was also mailed out to residents within the immediate vicinity of the Site as well as those included on the Site mailing list. ADEQ has complied with A.A.C. R18-16-404 with respect to community involvement requirements. All community involvement requirements are documented in Section 4.3.

The RI Report was issued in May 2009 (GeoTrans, 2009) and a notice of availability was issued in July 2006 and May of 2009. In accordance with A.A.C. R18-16-406, the RI report established the nature and extent of the contamination and the sources thereof; identified current and potential impacts to public health, welfare, and the environment; identified reasonably foreseeable uses of land and waters of the State; and obtained and evaluated other information necessary for identification and comparison of alternative remedial actions. The RI Report was released in draft form for public comment in July 2006. Upon completion of the comment period, the public comments were reviewed and incorporated into the RI Report.

In accordance with A.A.C. R18-16-407(B), an FS Work Plan was prepared that described how the FS Report would be compiled. A notice for the FS Work Plan availability was published in the West Valley View newspaper and mailed directly to parties included on the Site mailing list in Fall 2012.

The FS Report was issued in April 2014 (Hargis, 2014a). The FS Report, as required by A.A.C. R18-16-407, included a reference, more aggressive and less aggressive remedy all capable of achieving site ROs. The FS Report evaluated each remedial alternative and detailed the following:

- The ability of each alternative to achieve the ROs;
- The consistency of each alternative with the water management plans of affected water providers and the general land use plans of local governments;
- The practicability, feasibility, effectiveness, and reliability of each alternative;
- The risks associated with each alternative;
- The total cost and duration of each alternative; and

- The benefit or value of each remedial alternative.

The original PRAP was issued on April 25, 2014 (Hargis, 2014b). The PRAP contained a description of the proposed remedy (A.R.S. §49-287.04[A]) and described how the proposed remedy would achieve the ROs. A public comment period was conducted for the original PRAP from April 25, 2014 through June 23, 2014. A public notice for the original PRAP was published in the West Valley View newspaper in April 2014. The PRAP was also presented and discussed at a public CAG meeting held on May 21, 2014. Written comments on the PRAP were received from seven entities.

Although not necessary by statute, a Revised PRAP was published on October 7, 2014 in response to the public comments (Hargis, 2014c). A public comment period on the Revised PRAP was conducted from October 7, 2014 through November 5, 2014. A public notice for the Revised PRAP was published in the West Valley View newspaper in October 2014. Written comments on the Revised PRAP were received from two entities. The responses comments on both PRAPs are presented in the Responsiveness Summary (Appendix A). In accordance with A.A.C. R18-16-404, a public notice of availability of both the Responsiveness Summary and the ROD will be prepared.

4.2 Demonstration of Compliance with A.R.S. §49-282.06

MNA with groundwater capture and treatment has been selected as the remedy for the Site. Based on a comparison with the other remedial alternatives described in the FS Report, the selected remedy:

- Adequately assures the protection of public health, welfare, and the environment;
- To the extent practicable, provides for the control, management and cleanup of COC contamination, maximizing beneficial use of groundwater; and
- Is reasonable, necessary, cost-effective, and technically feasible.

The remedy is consistent with A.R.S. §49-282.06 as it provides protection to the public by providing control of hazardous substances.

4.3 Community Involvement and Public Comment Requirements

ADEQ has completed the required community involvement and public comment requirements for the Site. The community has been kept advised of investigative and other activities through presentations by ADEQ, quarterly CAG meetings, and various public notices. A summary of the community involvement activities are presented in Table 2.

In accordance with A.A.C. R18-16-302, a public information repository has been maintained in ADEQ's office located at 1110 West Washington Street in Phoenix, Arizona. Pertinent Site documents as well as the most recent Site information and notices can be found at: http://www.azdeq.gov/node/1083.

Table 2. Community Involvement and Public Comment Requirements		
Community Involvement Activity	**Regulatory Citation/Rule**	**Date**
Establish Community Involvement Area	A.R.S. §49-289.02	1999
Notice of Site Listing on WQARF Registry	A.R.S. §49-287.01	December 1998
Hazardous Substance Contamination Notice	A.R.S. §49-289.02	March 2000
Issue Notice of RI Scope of Work, Fact Sheet, Community Involvement Plan Outline, and Comment Period	A.R.S. §49-287.03	2001
Develop Community Involvement Plan	A.R.S. §49-289.03(C) and (B)	March 2002
Establish Community Advisory Group (CAG)	A.R.S. §49-289.03(C)(1)	February 2001
Designate CAG Spokesman	A.R.S. §49-289.03(C)(2)	March 2000
Provide CAG Newsletters	A.R.S. §49-289.03(C)(3)	March 2002
Conduct CAG Meetings	A.R.S. §49-289.03(C)(4)	March 2002 to Present
Establish Selection Committee	A.R.S. §49-289.03	January/February 2001
Establish Information Repository	A.R.S. §49-289.03	2002
Fact Sheets	A.R.S. §49-289.03	Late 1990 to Present (as needed)
Notice of Opportunity to Comment on Draft RI	A.A.C. R18-16-406	2006
Public Meeting to Establish ROs	A.A.C. R18-16-406	February 2009
Notice of Availability and Comment Period for Proposed RO Report	A.A.C. R18-16-406	January 2009
Notice of Availability of RI Report	A.A.C. R18-16-406	July 2006/May 2009
Notice of Availability of the FS Work Plan	A.A.C. R18-16-406(C)(1)(d)	Fall 2012
Notice of Availability of Final FS Report	A.A.C. R18-16-406(C)(1)(d)	May, 13, 2014
Notice of Availability of PRAP and Public Comment Period	A.A.C. R18-16-408(C)	April 25, 2014
Extension of PRAP Public Comment Period	A.A.C. R18-16-408(C)	May 20, 2014
Notice of Second 30-Day PRAP Public Comment Period	A.A.C. R18-16-408(C)	October 7, 2014
Notice of ROD	A.A.C. R18-16-410	To be published after execution of the ROD

4.4 Schedule

The remedy will formally begin once the ROD is fully executed and entered into the Administrative Record. The schedule for implementing the selected remedy will be dictated by The Goodyear Tire & Rubber Company's operation and maintenance schedule for the existing PGAS groundwater treatment system, or ADEQ's operation and maintenance schedule of a treatment system if The Goodyear Tire & Rubber Company discontinues the PGAS groundwater treatment system or ADEQ determines the currently existing PGAS groundwater treatment system is not effective in removing residual PCE from Western Avenue. The remedy will remain in place until the COC (PCE) is no longer present in Subunit A groundwater monitoring wells (EPA-MW-71A; EPA MW-72A; GMW-03; GMW-08; GMW-27A; GMW-31A; GMW-33A; EMW-08R; EMW-10R and E-17) at concentrations greater than the AWQS. For cost estimating purposes, ADEQ calculated the duration of the remedy will be up to 15 years based on current and historical groundwater data trends.

4.5 Site Review

Per A.A.C. R18-16-410(B)(8), a time-frame for review of the selected remedy is required to determine the effectiveness in achieving the remedial objectives. A periodic review of the effectiveness of the remedy will be conducted at three-year intervals, but may be conducted at more frequent intervals at the discretion of ADEQ. Each periodic review will determine the effectiveness of the remedy at achieving the Site ROs. Periodic reviews may include:

- Estimated time required to achieve cleanup goals;
- Evaluation and rational for the implementation of alternative remedial technologies and strategies that can reduce the time and/or cost to achieve Site closure;
- Evaluation of the remedy's ongoing ability to achieve ROs and remain protective of human health and the environment; and
- Rational for the determination that no further action is necessary at the Site or at a portion of the Site per A.A.C. R18-16-414 and A.R.S. § 49-287.01(G)(J)(K), if appropriate, will be made during the periodic review.

The findings from the periodic reviews may be used to amend the ROD per A.A.C. R18-16-410(E) and A.R.S. § 49-287.01(B)(C)(D). Findings may also be used to support the implementation of pilot or bench testing studies for innovative technologies that may reasonably be likely to meet criteria set forth in A.A.C. R18-16-412 and decrease the time and/or cost to achieve ROs at the Site.

5.0 COST

As required in A.A.C. R18-16-410(C), this section presents the costs, excluding non-recoverable costs, incurred by ADEQ during site characterization and implementation of remedial actions and presents the costs associated with the selected remedy.

5.1 Historical Costs

The Site was placed on the WQARF Registry in 1998 due to the discovery of groundwater contamination. Investigation and remediation of the Site by ADEQ began in 2000 and will continue until the ROs have been met. Based on the information obtained during site characterization activities, the Site has been classified as an orphan and cost recovery is not appropriate because a source of the PCE contamination was never found. Thus, there are no recoverable costs associated with historical remedial actions.

5.2 Future Costs

The anticipated cost to implement the selected remedy described in this ROD with contingencies is $2,353,180. A summary of the costs is presented in Table 3.

Table 3.
Summary of Remedial Costs

Remedy Year	Annual Cost*	Notes
1	$58,700	Semi-Annual Monitoring and Reporting
2	$60,461	Semi-Annual Monitoring and Reporting
3	$72,275	Semi-Annual Monitoring\Reporting & Site Review
4	$64,443	Semi-Annual Monitoring and Reporting
5	$66,376	Semi-Annual Monitoring and Reporting
6	$78,368	Semi-Annual Monitoring\Reporting & Site Review
7	$70,719	Semi-Annual Monitoring and Reporting
8	$72,840	Semi-Annual Monitoring and Reporting
9	$85,025	Semi-Annual Monitoring\Reporting & Site Review
10	$77,576	Semi-Annual Monitoring and Reporting
11	$79,904	Semi-Annual Monitoring and Reporting
12	$92,301	Semi-Annual Monitoring\Reporting & Site Review
13	$85,070	Semi-Annual Monitoring and Reporting
14	$87,622	Semi-Annual Monitoring and Reporting
15	$100,250	Semi-Annual Monitoring\Reporting & Site Review
16	$101,250	Site Delisting and Well Abandonments
SUBTOTAL	**$1,253,180**	
CONTINGENCIES:		
	$350,000	Additional Site Investigation
	$750,000	Remedy Acceleration (ISCO or ERD)
SUBTOTAL	**$1,100,000**	
TOTAL COSTS	**$2,353,180**	

Notes:
*Annual cost assumes a 3% annual inflation rate

6.0 RESPONSIVENESS SUMMARY

6.1 Original PRAP Comment Period

Per A.A.C. R18-16-410(B)(2) and A.R.S. §49-287.04(F), a comprehensive responsiveness summary shall be prepared by the director regarding all comments received on the PRAP after the conclusion of all public comment periods.

In accordance with A.A.C. R18-16-404 and 408, notification of the availability of the original PRAP for public comment was published in the West Valley View in Avondale and Goodyear on April 25, 2014. The public comment period began on April 25, 2014 and was extended an additional 30 days ending on June 23, 2014. A public meeting was held at the City of Goodyear offices on May 21, 2014 to present Site information and answer questions from the public regarding the PRAP. A total of seven written comments were received during the public comment period and are presented below. Written responses to all comments are presented in Appendix A.

Comment No.	Source	Method
1	City of Goodyear Arizona	Written
2	Western Avenue Site Community Advisor Group (CAG)	Written
3	Ms. Dianne Krone, Western Avenue Site CAG Member	Written
4	U.S. Environmental Protection Agency (EPA)	Written
5	The Goodyear Tire & Rubber Company	Written
6	Quarles & Brady on behalf of Crane Company	Written
7	City of Avondale Arizona	Written

6.2 Revised PRAP Comment Period

In accordance with A.A.C. R18-16-404 and 408, notification of the availability of the Revised PRAP for public comment was published in the West Valley View in Avondale and Goodyear on October 7, 2014. The public comment period began on October 7, 2014 and ended on November 5, 2014. Comments from two entities were received during the public comment period and are presented below. Written responses to all comments are presented in Appendix A.

Comment No.	Source	Method
1	City of Goodyear Arizona	Written
2	Quarles & Brady on behalf of Crane Company	Written

7.0 REFERENCES

Arizona Department of Environmental Quality (ADEQ), 1995. *Preliminary Assessment/Site Inspection Report – Western Avenue Dry Cleaners, 300 West Western Ave., Avondale, Arizona*. June 30.

ADEQ, 2001. *Preliminary Assessment/Site Inspection Report – Aladdin Cleaners, 322 E. Western Ave., Avondale, Arizona*. August 15.

ADEQ, 2009. *Proposed Remedial Objectives Report – Western Avenue WQARF Site, Avondale/Goodyear, Arizona*. January.

GeoTrans, 2003. *Industrial Survey Report, Western Avenue WQARF Site, Avondale and Goodyear, Arizona*. May 6.

GeoTrans, 2005. *Current and Future Beneficial Land and Water Use, Western Avenue WQARF Site, Cities of Avondale and Goodyear, Arizona*. June 30.

GeoTrans, 2009. *Final Remedial Investigation Report, Western Avenue Plume WQARF Site, Avondale and Goodyear, Arizona*. May.

Hargis + Associates, Inc. (Hargis), 2013. *Summary Report, Time-Series Groundwater Sampling, City of Goodyear well COG-01. Western Avenue WQARF Site, Avondale and Goodyear, Arizona*. November 1.

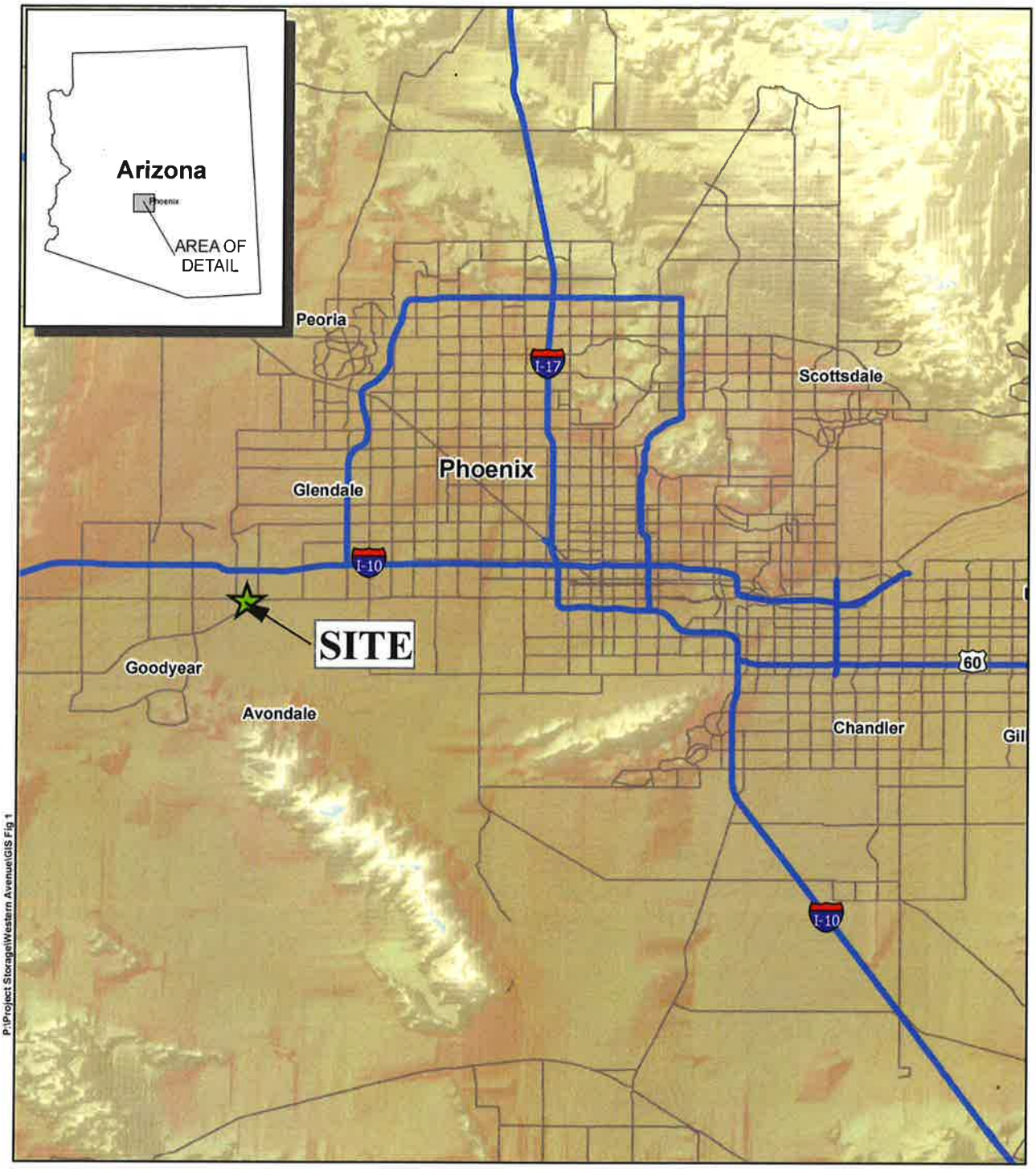
Hargis, 2014a. *Feasibility Study, Western Avenue WQARF Site, Avondale and Goodyear, Arizona*. April 23.

Hargis, 2014b. *Proposed Remedial Action Plan, Western Avenue WQARF Site, Avondale and Goodyear, Arizona*. April 24.

Hargis, 2014c. *Revised Proposed Remedial Action Plan, Western Avenue WQARF Site, Avondale and Goodyear, Arizona*. October 7.

Innovative Technical Solutions, Inc. (ITSI), 2013. *Area Between the Sites Study*. March.

FIGURES



N

0 4 8 Miles

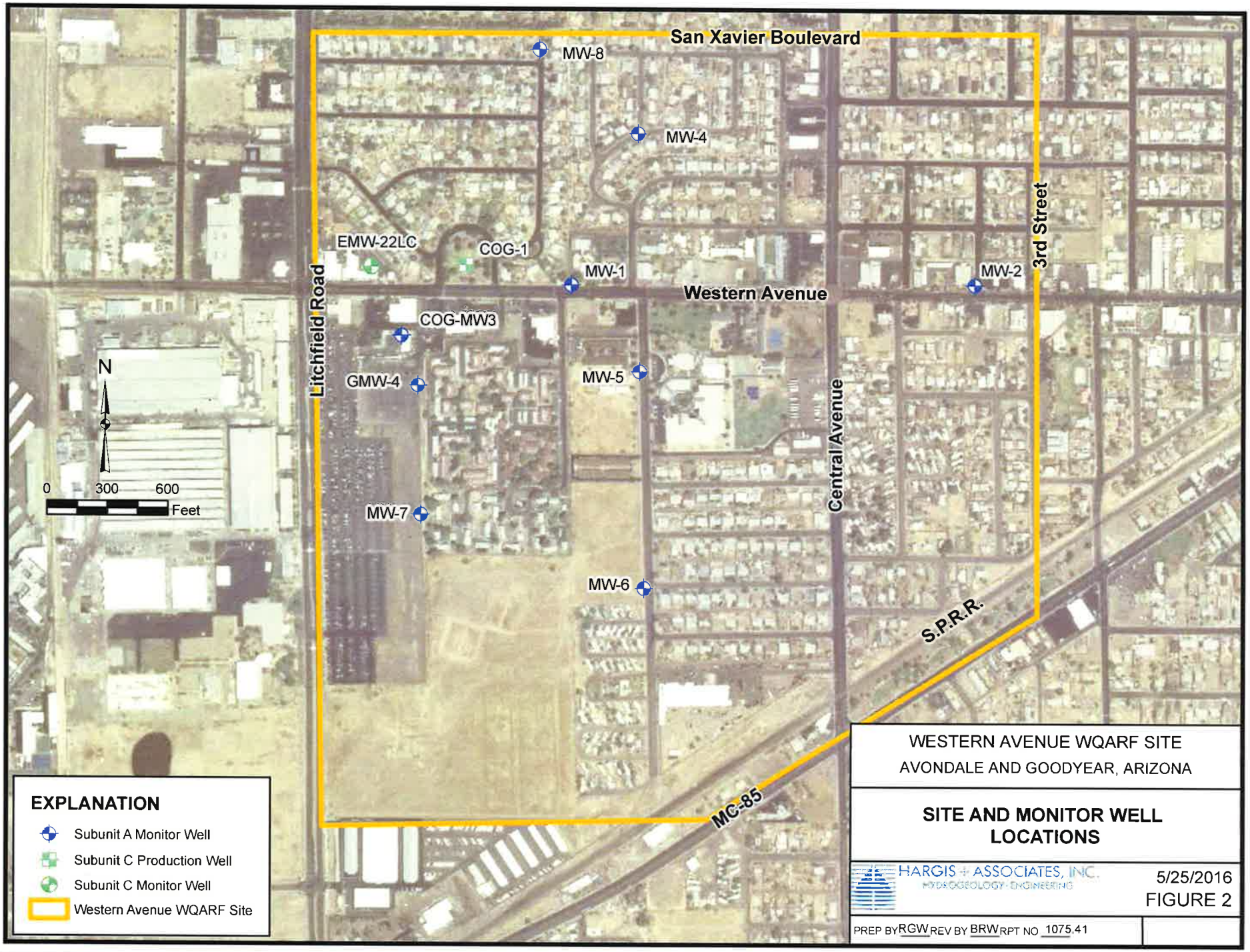
WESTERN AVENUE WQARF SITE
AVONDALE AND GOODYEAR, ARIZONA

SITE LOCATION

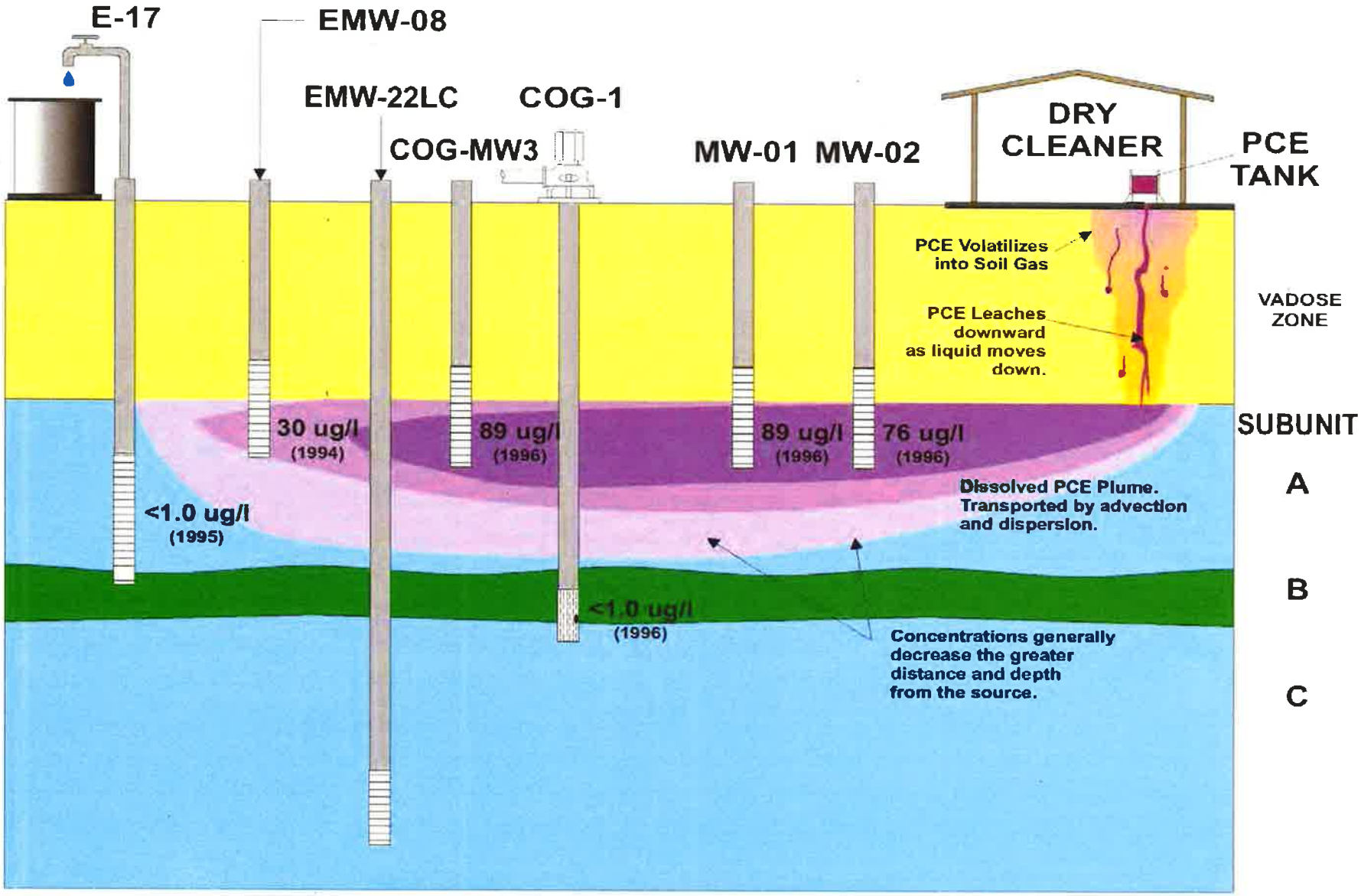
HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY · ENGINEERING

FIGURE 1

PREP BY: JWM REV BY: MFW	DATE: 6/21/2010 FILE: Fig 1.mxd	PROJECT: 1075.41



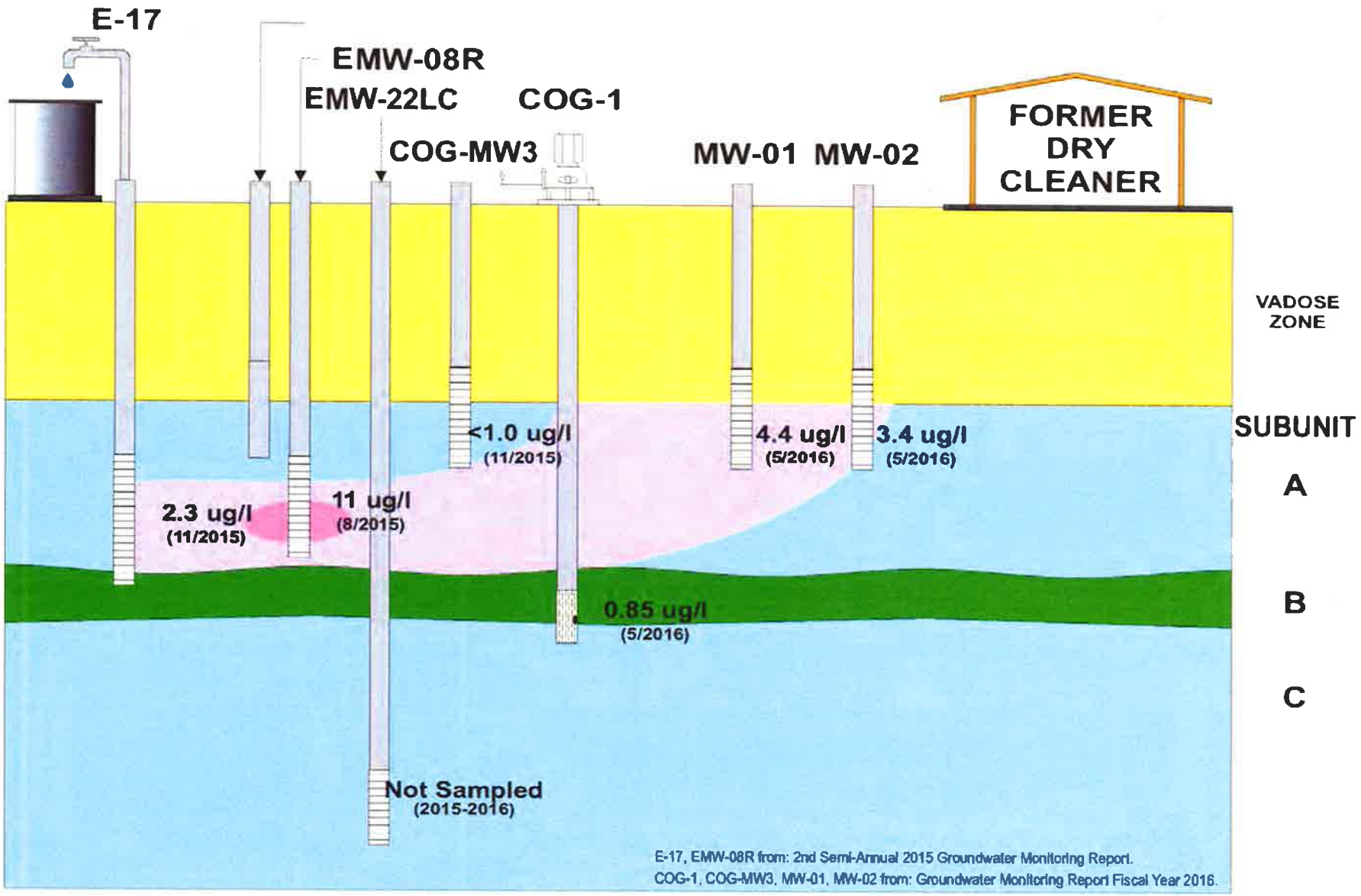
Name: Well Locations



HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

Conceptual Site Model 1994-96

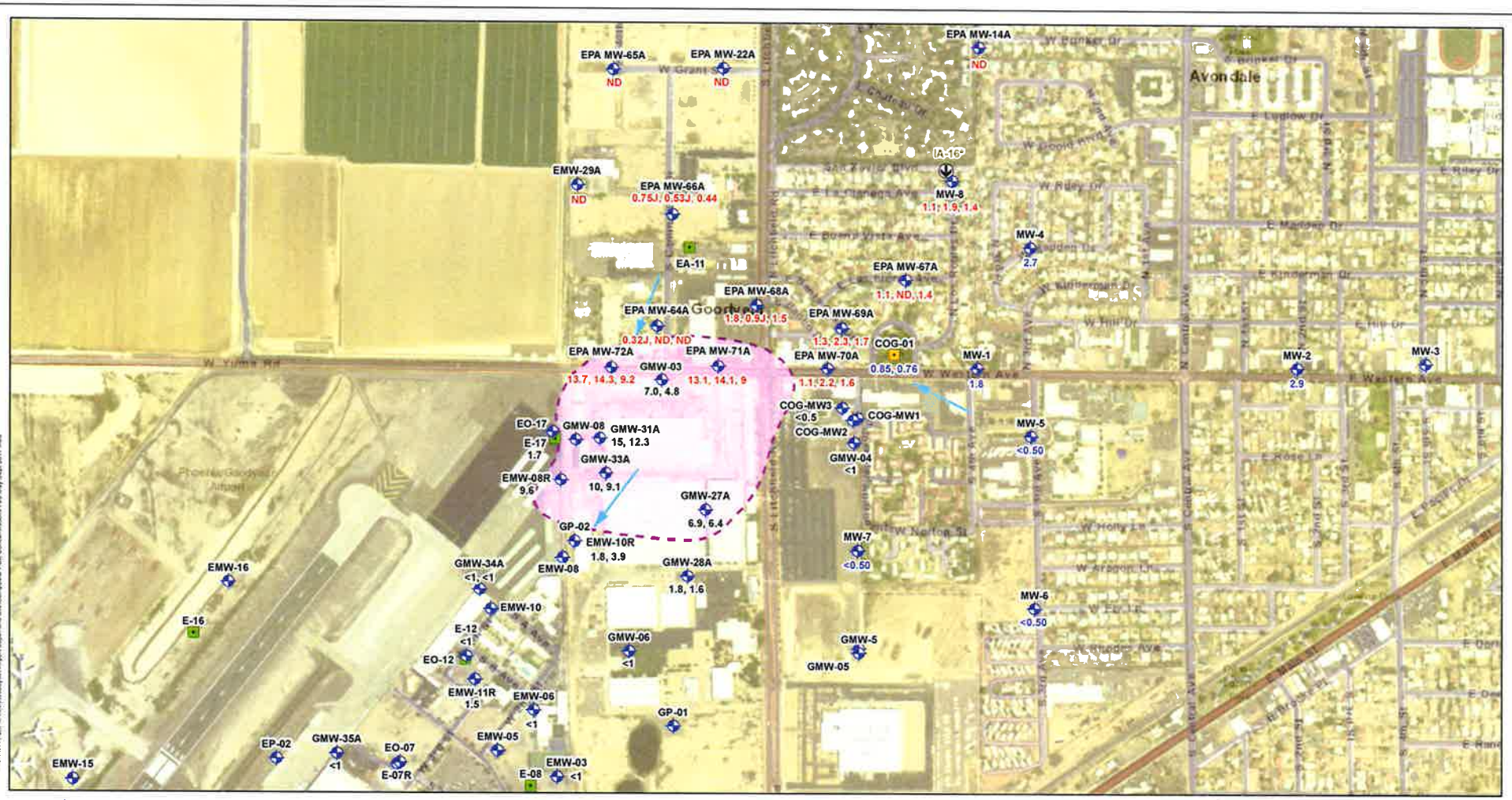
Figure 3



HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY · ENGINEERING

Conceptual Site Model 2015-2016

Figure 4



Subunit A Monitor Well
City Production Well COG-01
Remedial Extraction Well
Injection Well
Approximate Groundwater Flow Direction
PCE plume with 5ug/L boundary, based on February 2017 data

4.7 PCE data from PGAN, February, May, September 2017, respectively
2.9 PCE data from WA, February, May 2017, respectively
8.9 PCE data from PGAS, February, May 2017, respectively
Note: PCE concentrations are reported in micrograms per liter
ND = Non-Detect
* = Location is approximated

0 300 600 Feet

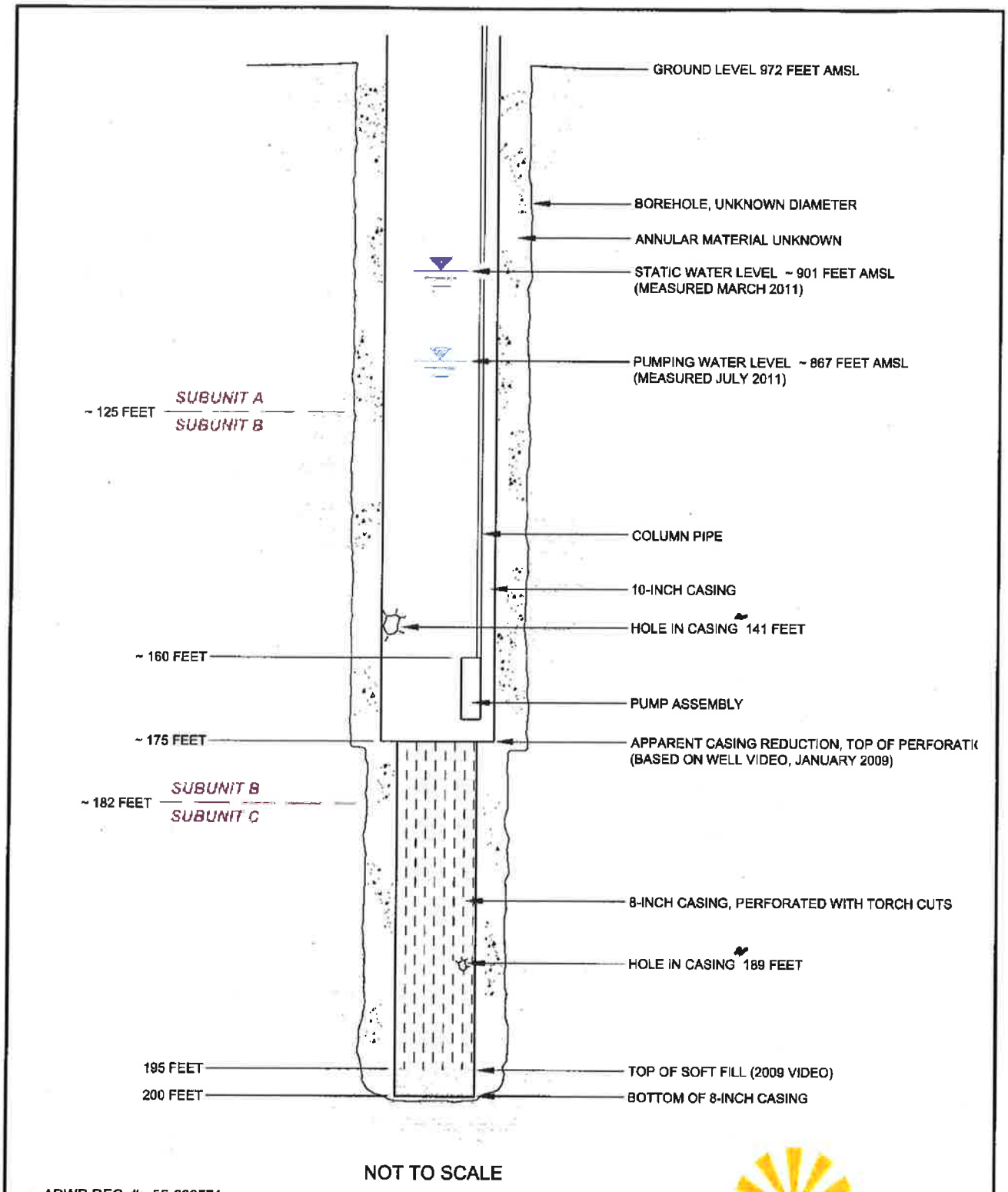
N

GOODYEAR AIRPORT NORTH SUPERFUND SITE
GOODYEAR, ARIZONA

PCE CONCENTRATIONS IN GROUNDWATER SUBUNIT A

HARGIS + ASSOCIATES, INC.
10/31/2017
FIGURE 5

PREP BY NKR REV BY CJL RPT NO 1075.01



P:\Goodyear, City of\138789 - Goodyear Superfund & WQARF\Drawings\ES\138789014.dwg Nov 19, 2012 - 11:34am jcollier

FIGURE 6. WELL COG-1 CONSTRUCTION INFORMATION

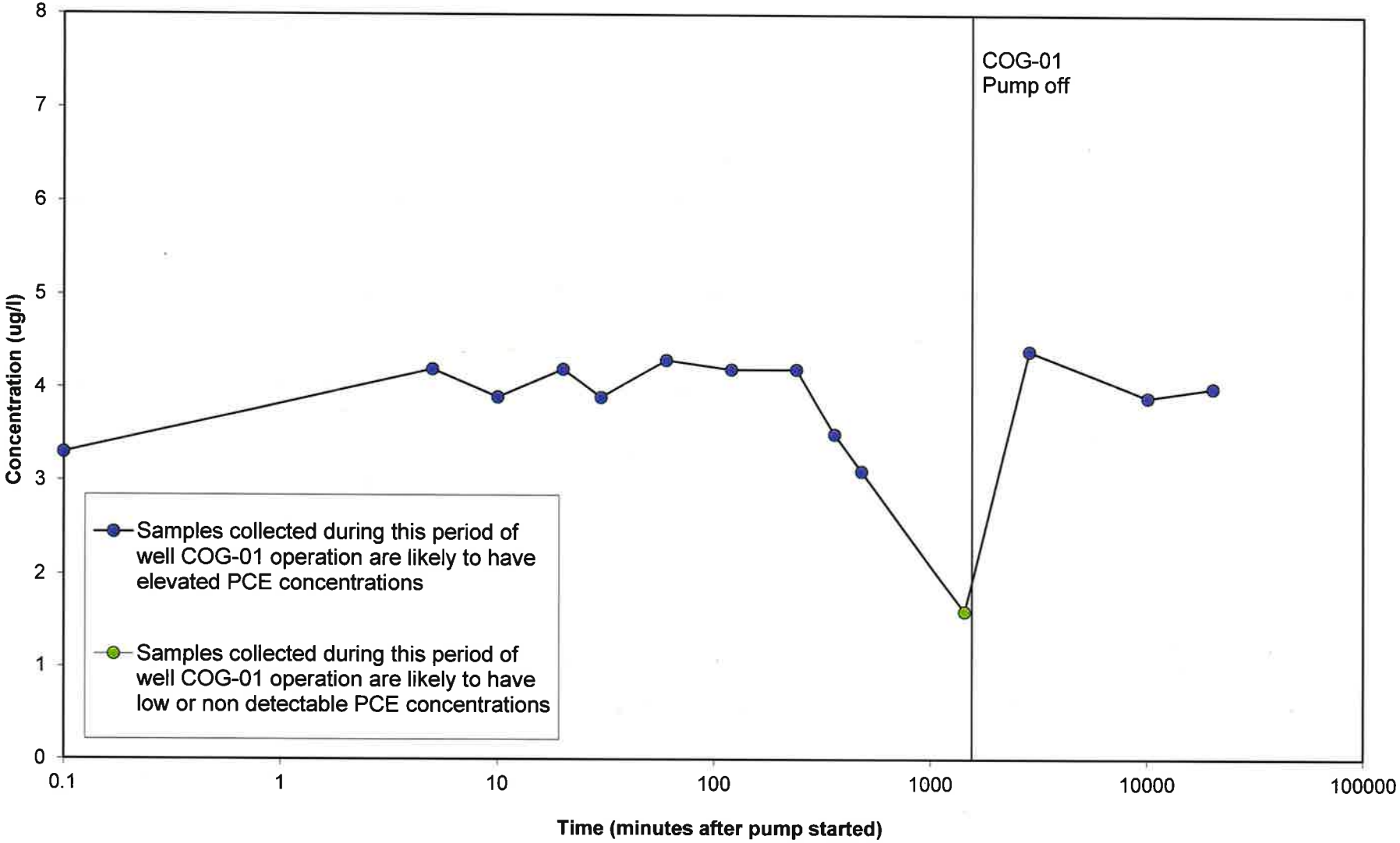


FIGURE 7.
TETRACHLOROETHENE CONCENTRATIONS
PUMPED WELL COG-01

HARGIS + ASSOCIATES, INC
Hydrogeology/Engineering

Appendix A Responsiveness Summary to Public Comments and Questions

Appendix A

WESTERN AVENUE
WATER QUALITY ASSURANCE REVOLVING FUND SITE
Avondale and Goodyear, Arizona

RESPONSIVENESS SUMMARY
TO PUBLIC COMMENTS AND QUESTIONS

Proposed Remedial Action Plan

and

Revised Proposed Remedial Action Plan

June 18, 2018

ADEQ
Arizona Department
of Environmental Quality

Appendix A

PART I

PRAP Comment Period and Public Meeting

In accordance with Arizona Administrative Code (A.A.C) R18-16-404 and 408, notification of the availability of the PRAP for public comment was published in the West Valley View, Avondale and Goodyear, Arizona on April 25, 2014. The first public comment period began on April 25, 2014. Public comment periods are required to be 30 days in duration, however, to accommodate the public, the first public comment period was extended an additional 30 days and ended on June 23, 2014. A public meeting was held on May 21, 2014 to present Site information and answer questions from the public regarding the PRAP. The public meeting was held at the City of Goodyear offices located at 190 North Litchfield Road, Goodyear, Arizona 85338. Comments received during the public comment period are presented below and the comments are followed by ADEQ's responses.

Commenter Number	Source	Method
1	City of Goodyear Arizona	Written
2	Western Avenue Site Community Advisor Group (CAG)	Written
3	Ms. Dianne Krone, Western Avenue Site CAG Member	Written
4	U.S. Environmental Protection Agency (EPA)	Written
5	The Goodyear Tire & Rubber Company	Written
6	Quarles & Brady on behalf of Crane Company	Written
7	City of Avondale Arizona	Written

Written Comments – City of Goodyear

City of Goodyear Comment 1. The City would like to be assured that if the well is further compromised ADEQ will provide a replacement well at the existing location or a new location (greater than 660 feet from the existing site). The City requests that ADEQ obtain a pre-approval from the Director of the Arizona Department of Water Resources to move the well greater than 660 feet if necessary. The City also requests that ADEQ provide the City with a Capital Improvement Plan ensuring that the funds will be available to replace the well. This policy is consistent with our Superfund agreements. The City requests that well replacement strategy be a part of the final Remedial Action Plan.

ADEQ Response: ADEQ will work with the City of Goodyear to provide an alternate water source if ADEQ determines that the Site is causing water pumped from COG-01 to exceed EPA Maximum Contamination Limits (MCLs) for drinking water.

Specific PRAP comments are listed below:

City of Goodyear Comment 2. Section 2.3 Chronology of Site Activities, page 5, Year 2011: ITSI's "Area Between the Site" study is referenced here, but there is no other discussion about the report. The City suggests adding a brief summary of the report findings here.

ADEQ Response: ADEQ believes that the ITSI report is adequately cited in the PRAP.

Appendix A

City of Goodyear Comment 3. Section 3.3.3 Vertical Extent, pages 15-16: ADEQ states that they believe the vertical extent of PCE has been sufficiently defined for the Site. It is not clear to the City how the vertical extent of PCE in groundwater can be sufficiently defined for the Site, when the majority of Site monitor wells are only screened across the upper most saturated portion of Subunit A. The discussion regarding monitor well MW-8 is not adequate for providing justification for ADEQ's statement that the vertical extent of PCE has been adequately defined because MW-8 is not located within, or directly downgradient of, the main portion of the plume. The City suggests that the remedy include the addition of some deeper Subunit A monitor wells and possibly a monitor well screened in the upper portion of Subunit C.

ADEQ Response: ADEQ believes that the extent of PCE has been adequately characterized. The Western Avenue Site has been evaluated and monitored since it was first discovered in the early 1990s. As indicated in the RI report, the Western Avenue plume is defined as the area where the concentrations of PCE in groundwater exceed the AWQS/MCL for PCE. The Site has been characterized to the north, south and east by Site monitor wells, and to the west and northwest by PGAN and PGAS monitor wells. The results of vertical profiling in Site wells indicates that concentrations of PCE decrease with depth. Data collected from the Site, PGAN, and PGAS do not indicate the existence of large masses of PCE in deeper portions of the Site. PCE impacts to Subunit B/C groundwater has only been found in the vicinity of well COG-1. The cause of impacts to Subunit B/C groundwater has been determined to be the result of COG-01 well integrity issues.

City of Goodyear Comment 4. Section 5.0 Proposed Remedy, page 18, third bullet states, "Present information that does suggest there is any impact on local water supplies." The City respectfully request that his statement be re-written to state that there are impacts on local water supplies. Analytical data for groundwater samples collected from City of Goodyear production well COG-01 have shown that production well COG-01 is in fact impacted. PCE had been detected at levels exceeding 80% of the Maximum Contaminant Level (MCL) of 5 micrograms per liter (µg/L) even after the well has been pumping for several hours. COG-01 is clearly at risk of exceeding the MCL for PCE, for short periods of time. Additionally, upgradient well MW-1 continues to exceed the MCL for PCE.

ADEQ Response: Pursuant to discussions between ADEQ and the CAG at the May 21, 2014 public meeting, the word "impact" was removed from this section of the PRAP. The word "impact", as originally used in the PRAP, was meant to denote groundwater containing PCE at concentrations greater than the AWQS/MCL. Since no groundwater samples collected to date from well COG-01 have contained PCE at a concentration greater than the AWQS/MCL, the phrase "does not suggest there is any impact" was used. However, the word "impact" was removed from the text and the Revised PRAP included language similar to that suggested by the Western Avenue Site CAG.

City of Goodyear Comment 5. Section 5.4 Contingencies, page 21: General comment: The City requests that this section be expanded to include clear steps regarding the replacement of the City's groundwater resource at COG-01, if the MCL for PCE is exceeded. Further, the City request that more details are provided on how the confirmation sampling will occur following and initial exceedance of MCL at COG-01, such as the timing between the initial sampling and confirmation sampling and, the conditions under which the well is sampled, such as, actively pumping or a pump idle/start up to sample scenarios.

ADEQ Response: Because current groundwater conditions preclude the need for a Response Plan for well COG-01, all references of the Response Plan have been removed from the ROD. Because it has been determined that the residual PCE concentration plume west of Litchfield Road was being captured by the PGAS groundwater capture system, the overall Site remedy has been modified from a potential response scenario to an active mass removal strategy utilizing the PGAS groundwater treatment system.

City of Goodyear Comment 6. Section 5.4 Contingencies, last sentence: The City requests removing the words "and destroyed" and adding the following language after "ADWR regulations...." At the end of the sentence: "and replace the groundwater supply lost at COG-01 due to contamination with the Western Avenue Site."

ADEQ Response: The word "destroyed" was added to the PRAP text to be more descriptive of the actions ADEQ will undertake if or when necessary for well COG-01. It was intended for those readers perhaps not familiar with the Arizona Department of Water Resources (ADWR) definition of "abandon". The word "destroyed" has been removed from the PRAP.

The Western Avenue Site CAG submitted the following seven comments:

Western Avenue Site CAG Comment 1. Section 5.0 Proposed Remedy, 4th bullet. "Present information does not suggest there is any impact on local water supplies". We disagree with the reference to "impact". Risk to the COG-01 well has an impact on its operation. Sentence might read "Present information does not suggest any exceedances of PCE levels on local water supplies".

ADEQ Response: Since no groundwater samples collected to date from well COG-01 have contained PCE at a concentration greater than its AWQS/MCL, the phrase "does not suggest there is any impact" was used. However, the word impact was dropped and the PRAP has been revised with language similar to that suggested by the CAG.

Western Avenue Site CAG Comment 2. Section 5.3 Cost. We recommend quarterly sampling for COG-1 for the first year with an update every year presented at an appropriately-scheduled (time and location) public meeting.

ADEQ Response: ADEQ will conduct semi-annual groundwater monitoring at all Site wells, including well COG-01, for the first two years and annually thereafter. However, future groundwater monitoring frequency may be modified based on a review of the first two years data.

Western Avenue Site CAG Comment 3. Section 4.0 Contingencies. Clarify what is meant by "COG-1 would be abandoned and destroyed pursuant to applicable ADWR regulations". Who will bear the cost of abandonment? Will there be a replacement well created; if so, who will bear that cost?

ADEQ Response: This contingency has been removed from the ROD as water from well COG-01 has not exceeded any AWQS/MCL for the Site COC and the water upgradient of the well, within the well's likely capture zone, has not demonstrated an exceedance of AWQS/MCL for the Site COC since 2016.

Western Avenue Site CAG Comment 4. Enter into an agreement with the City of Goodyear requiring them to log the run times of the well and provide that information to ADEQ.

ADEQ Response: The City of Goodyear has provided ADEQ with well COG-01 pumping data in the past. ADEQ will ensure data sharing in the future.

Western Avenue Site CAG Comment 5. Encourage the continued sharing of data and results of groundwater monitoring from COG-1 to and from the City of Goodyear.

ADEQ Response: ADEQ will continue to share data as it is collected and distribute the data to the public and interested stakeholders.

Western Avenue Site CAG Comment 6. Ensure that there are access and results/data sharing agreements with appropriate parties for all the wells needed for WA assessment that do not belong to ADEQ (e.g., GMW-4, COG-1, and EW22LC).

ADEQ Response: ADEQ will continue to share data as it is collected and distribute the data to the public and interested stakeholders, and believes that data gathered from wells not owned by ADEQ will continue to be shared by external parties.

Western Avenue Site CAG Comment 7. Continue current monitoring schedule for all wells in the WA network to be reviewed yearly.

ADEQ Response: ADEQ will conduct semi-annual groundwater monitoring at all Site wells, including well COG-01, for the first two years of MNA.

Ms. Diane Krone - Western Avenue Site CAG member submitted the following nine comments:

Ms. Diane Krone Comment 1. The issue is conflict of interest. Arizona Department of Environmental Quality is both the "responsible party" (in lieu of the actual offender) AND the regulatory agency. Its mission statement has been perverted by the cost to do so. This PRAP shows that the agency's integrity has been compromised and financial concerns have driven the outcome of the Western Avenue site.

ADEQ Response: ADEQ is funding all Site investigations and associated costs because no "responsible party" was found during Site investigations. The State of Arizona was not the party that caused the release, therefore the State of Arizona cannot, by definition or law, be identified as a responsible party at the Site. Furthermore, ADEQ's position and actions at the Site have been wholly consistent with its Mission and laws (Arizona Revised Statues 49-281 through 290).

Ms. Diane Krone Comment 2. No source has been found in all these years. Without a source all the findings are mere supposition and wishful thinking.

ADEQ Response: Thank you for your comment.

Ms. Diane Krone Comment 3. Only one monitoring well has been installed in the 13 years I have sat on the Community Advisory Group and that well was not installed deep enough nor in the proper location to act as a sentinel well for COG #1, the production public drinking well it is sworn to protect.

ADEQ Response: Monitor well MW-8, installed in 2009, was the most recent well installed by ADEQ. Monitor well MW-8 was not installed to serve as a sentinel well for well COG-01, but to provide water level and water quality data in the northwestern portion of the Site. A secondary purpose of well MW-8 was to provide information on Subunit B.

Ms. Diane Krone Comment 4. No remediation has taken place except that which has been done by Goodyear Tire and Rubber.

ADEQ Response: ADEQ agrees that active remediation which has affected the Site has been conducted by The Goodyear Tire & Rubber Company. It should also be noted that data gathered from groundwater monitoring has shown an order of magnitude decrease of PCE concentrations over time. This trend is indicative of a combination of attenuation, dispersion and dilution, all of which are effectively decreasing concentrations of PCE through passive means.

Ms. Diane Krone Comment 5. No written agreement has ever been pursued to use other party's wells for monitoring purposes.

ADEQ Response: ADEQ believes that an agreement is not necessary between the parties. Groundwater monitoring and sampling activities have been coordinated across the WQARF and Federal Superfund sites so that all of the data is collected from the wells at the same time. The data is then shared across all parties.

Ms. Diane Krone Comment 6. No coordination with the City of Goodyear (owner of COG #1) concerning shared data and a written agreement to do so was ever sought until most recently when it was aggressively addressed by the CAG.

ADEQ Response: Please see the response to the above comment regarding well access.

Ms. Diane Krone Comment 7.I believe the very least that could be done is to monitor COG #1 bimonthly during heavy pumping and monthly at all other times. This information is to be shared with the City of Goodyear and protocol be put in place so that immediate action be taken when and if PCE goes above the required limit.

ADEQ Response: ADEQ believes that the proposed MNA groundwater monitoring schedule, as modified by the CAG during public meeting and above in this document, is adequate and protective. The two years of semi-annual followed by ongoing annual sampling described in the Site ROD, combined with state and federally required drinking water distribution system sampling already being conducted by the City of Goodyear, is adequate and protective of human health. Further, the sampling plan prescribed the Site ROD includes wells located within the assumed capture zone of well COG-1. PCE is detected at concentrations greater than the AWQS/MCL only in wells west of Litchfield Road and is not a threat to COG-1.

Ms. Diane Krone Comment 8. In addition, should it be necessary to abandon COG #1, all expenses to abandon and replace the well should be shouldered by WQARF or ADEQ.

ADEQ Response: With PCE concentrations decreasing at the Site, ADEQ does not anticipate that the future use of well COG-01 will be impaired nor a Response Plan for well abandonment be necessary. Should a remedial action become necessary for well COG-1, then ADEQ would pursue the action following rules set forth in ARS 49-282.06.

Ms. Diane Krone Comment 9. Finally, funding and regulation of "orphan sites" needs to be restructured so that a system of checks and balances exists. Perhaps then I can believe ADEQ's mission statement: TO PROTECT AND ENHANCE PUBLIC HEALTH AND THE ENVIRONMENT BY ENSURING SAFE DRINKING WATER AND REDUCING THE IMPACT OF POLLUTANTS DISCHARGED TO SURFACE AND GROUNDWATER.

ADEQ Response: ADEQs Mission is to "protect and enhance public health and the unique environment in Arizona". The Department achieves this Mission by administering the state's environmental laws and delegated federal programs to prevent pollution of the air, water and land, and to ensure cleanup of such pollution when it occurs. ADEQ appreciates the commenter's opinion above and invites the individual to meet with ADEQ to discuss its role in protecting the environment, the WQARF Program, and any other issues or concerns the individual has.

The U.S. EPA submitted the following six comments:

EPA Comment 1. It would be helpful to include an updated conceptual site model to better explain and understand the sources of the contamination, migration pathways, and present-day contaminant distribution at the WA Site.

ADEQ Response: The Site ROD contains an updated CSM which includes data gathered in 2016 and years prior.

EPA Comment 2. The RI seems to have some data gaps with respect to full nature and extent particularly with respect to a complete understanding of the horizontal and vertical extent of contamination. Water levels at the WA Site have dropped more than 20 feet since the mid-1990's leaving most of the WA monitoring wells screened at depths too shallow to measure PCE levels accurately. This is also a concern given that on the conference call it was thought that the existing wells at WA would also be used to monitor the effectiveness of the proposed MNA remedy.

ADEQ Response: Although groundwater levels have declined at the Site over the past 20 years, the horizontal extent of PCE at concentrations greater than the AWQS/MCL is defined by the existing monitor well network and supplemented by monitor wells located on the PGAS and PGAN sites. Section 1.4, Figure 4, and Figure 5 of the ROD describe the nature and extent of contamination at the Site. The wells selected by the ROD for inclusion in the monitor well network are screened within the saturated aquifer and able to produce groundwater samples to judge the effectiveness of the selected remedy.

Vertical profiling was conducted at all Site monitor wells in 2011 using passive diffusion bag (PDB) samplers. The results of the vertical profiling indicated that the concentrations of PCE in Subunit A

decrease with depth. Since vertical profiling, PDB samplers have been placed in the saturated zone where the highest concentrations of PCE were measured. ADEQ acknowledges that the Site wells are not screened across the entire thickness of Subunit A. However, the time series testing at COG-1, conducted by ADEQ in cooperation with the COG, indicates that PCE contamination is not from Subunit C groundwater and Subunit C monitor wells down gradient of COG-1 do not produce groundwater that contains PCE. If there was a large mass of PCE migrating through Subunit A to Subunits B or C, concentrations of PCE would be present in PGA-S Subunit C monitor wells. A review of available PGA-S groundwater data does not indicate the PCE is prevalent in Subunits B and PCE has not been detected in Subunit C at PGA-S.

EPA Comment 3. EPA suggests that the plume boundary for PCE incorporate PGAS and PGAN well data as was presented for discussion during the April 7th conference call.

ADEQ Response: The plume boundary for the Site has incorporated PGAN and PGAS wells that contain Site COCs above the AWQS/MCL.

EPA Comment 4. As we discussed on the call, it would make sense that the FS and the PRAP note the understanding that pump and treat at PGAS – in combination with the general groundwater flow direction in the area – is capturing some portion of WA PCE plume. ADEQ may even want to consider conducting a capture zone analysis and discuss this idea openly with the PGAS responsible party and other stakeholders.

ADEQ Response: The ability of the PGAS groundwater remediation system to capture and remediate residual Site PCE west of Litchfield Road is both acknowledged in, and incorporated into the remedy selected by the ROD.

EPA Comment 5. With respect to MNA, the PRAP does not provide a site-specific assessment of site geochemical conditions, the mechanism(s) for attenuation, or an evaluation of whether the contaminant plume is stable or shrinking. In addition, there is no clear determination that the source of contamination has been cut off. We understand that a source could not be found, however EPA's MNA guidance mentions source control as an important aspect of MNA.

ADEQ Response: An evaluation of natural attenuation was presented in the RI report. Although the PRAP does not restate the MNA assessment provided in the RI Report, the RI report is cited in reference to Site MNA within the PRAP.

The selection of MNA as a portion of the Site remedy is supported by Site-specific empirical data, specifically 17 years of regular groundwater monitoring. ADEQ conducted a MAROS analysis of PCE concentrations detected since February 2014 for Site monitor wells. The analysis evaluated whether the areal extent of PCE contamination in groundwater was increasing, decreasing, or remaining stable. The results of the analysis indicated that PCE concentrations in all Site monitor wells are either stable or decreasing and that natural attenuation is occurring. Additionally, regardless of the lack of an identified source, the consistent decrease of PCE concentrations detected in Site monitor wells over time is indicative that no active source is contributing to groundwater contamination, which is the desired effect of source control in MNA.

EPA Comment 6. The COG-01 study was an important effort that yielded helpful information. The COG-01 well testing show that the well acts as a conduit for PCE to move to Subunit C. Under pumping conditions, PCE concentrations decrease but the test did not address whether PCE moves down gradient of COG-01 in Subunit C when the well is not pumping. EPA is concerned that PCE contamination may be moving in Subunit C, a water-supply aquifer. WA has no Subunit C monitoring wells, thus it is not known whether and how far PCE may have migrated in Subunit C.

Also, what is the plan to protect this well should PCE concentrations increase in the future? The contingency section of the PRAP is not specific.

ADEQ Response: There are no indications that PCE is present in Subunit C at concentrations greater than the AWQS/MCL at the Site. Regarding the potential for PCE to impact Subunit C due to COG-01 acting as a conduit for contaminant migration, PGAS monitor wells GAC-03, GMW-13UC, and GMW-14UC are located approximately 1,200 feet, 1,700 feet, and 2,100 feet respectively, downgradient of well COG-1, screened in Subunit C, and have not demonstrated the presence or exceedances of the AWQS/MCL for PCE during the last 19 to 23 years they have been sampled. The lack of the presence of PCE in these wells, combined with the demonstration of a decreasing concentration of PCE in groundwater from well COG-1 under pumping conditions indicates that contaminant migration into Subunit C is only impacting groundwater near the well and within its capture zone.

ADEQ collected a groundwater sample from PGAS monitor well EMW-22LC for volatile organic compound (VOCs) analysis during well COG-01 time-series testing in 2013. No VOCs were detected in the sample. It is ADEQ's understanding that VOCs were not present in previous samples from this well. Monitor well EMW-22LC is located approximately 400 feet west (downgradient) of well COG-01. ADEQ acknowledges that well EMW-22LC is screened in the lower portion of the Subunit C. However, a review of data from other Subunit C wells at the PGAS (located downgradient of the Site) indicates that PCE is not present in any well at a concentration greater than the AWQS/MCL.

The Goodyear Tire & Rubber Company submitted the following three comments:

The Goodyear Tire & Rubber Company Comment 1. The PRAP should acknowledge that tetrachloroethene (PCE) is not a compound of concern of the Phoenix-Goodyear Airport South (PGA-S) site.

ADEQ Response: The PRAP was revised to state that PCE is not a PGAS compound of concern.

The Goodyear Tire & Rubber Company Comment 2. The PRAP should acknowledge the presence of PCE sourced from the Western Avenue Site at PGA-S. In Subunit A, PCE has been detected in groundwater samples from 45 PGA-S monitoring wells between 1990 and 2014 and was detected above the Maximum Contaminant Limit (MCL) at 18 of these locations.

The highest concentrations of PCE in Subunit A occurred between the years 1993 and 1997. Generally, the majority of PCE detected in Subunit A at PGA-S is located closer to the northern end of the volatile organic compound (VOC) plume. The highest concentration of PCE detected at PGA-S was in groundwater obtained from GMW-04 (46.1 micrograms per liter [ug/L] on 9 June 1995). PCE at GMW-04 declined to below the MCL of 5 ug/L in March 2003.

This time frame coincides with when PCE was first detected and showed increasing trends at PGA-North (1993) and when the Site was place on the Water Quality Assurance Revolving Fund Registry (1988). The highest concentrations of PCE detected at the Western Avenue site were in samples obtained from MW-1 (87 ug/L in 1996). At PGA-S, PCE was detected above the MCL at EMW-08 and GMW-03 during all 2013 and 2014 monitoring events. Both of these monitoring wells are located at the northern end of the Subunit A VOC plume which is downgradient of the Western Avenue site.

ADEQ Response: The PRAP notes that PCE-impacted Subunit A groundwater migrating from the Western Avenue Site is a source of PCE to PGA-S.

The Goodyear Tire & Rubber Company Comment 3. GTRC is concerned that the Western Avenue groundwater remedy reflected in the PRAP does not account for the continued migration and potential further impact of PCE on the groundwater remedy at PGA-S.

ADEQ Response: Because of these concerns, the overall Site remedy has been modified from a potential response scenario to an active mass removal strategy utilizing the PGAS groundwater treatment system.

Quarles & Brady on behalf of Crane Company submitted the following two comments:

Quarles & Brady Comment 1. Cover Letter, Paragraph 2: "As stated in detail in the Technical Comments, AMEC and Matrix, and hence Crane Co., are concerned that the Arizona Department of Environmental Quality ("ADEQ") has not identified the source or sources of the tetrachloroethene ("PCE") contamination at the Western Avenue Site.

ADEQ Response: Source investigations were conducted by ADEQ throughout the Western Avenue Site. Several potential sources were identified. Soil and soil gas sampling was conducted at the potential source areas that were determined to be the most likely source of PCE to Site groundwater based on directions of groundwater flow and the distribution of PCE in the groundwater. However, the source investigations were not able to discern which of the potential sources were responsible for the groundwater contamination. Thus, although the source or sources were not definitively identified, data from the source investigations and groundwater data from shallow monitor wells located near the potential sources indicates that there are no continuing sources of PCE within the Western Avenue Site.

Quarles & Brady Comment 2. ...and also has not fully characterized the horizontal and vertical extent of the PCE contamination in the groundwater. Further, the existing monitor well network is not sufficient to accurately monitor and define the PCE plume. Accordingly, the Monitored Natural Attenuation ("MNA") remedial alternative selected in the PRAP is premature and additional site characterization and groundwater monitoring is needed before an appropriate remedial alternative can be selected and implemented."

ADEQ Response: Section 1.4, Figure 4, and Figure 5 of the ROD describe the nature and extent of contamination at the Site. The wells selected by the ROD for inclusion in the monitor well network for the Site are screened within the saturated aquifer and able to produce groundwater samples to judge the effectiveness of the selected remedy.

Appendix A

The City of Avondale submitted one comment:

City of Avondale Comment 1. ...neither the PRAP nor the Feasibility Study prepared for the Western Avenue WQARF Site detail alternative measures or strategies to restore, replace or otherwise provide for the Goodyear water supply potentially impacted by the Western Avenue WQARF site. As such, the City does not believe that ADEQ's proposed measure or the overall remediation action plan is consistent with the Remedial Objectives that ADEQ has established for the Site or with the rules and statutes governing the WQARF program as described above.

There are a number of strategies or measures that could be implemented at COG-01, or indeed at Avondale supply wells if they are impaired or may be impaired in the reasonably foreseeable future by the hazardous substances at the Western Avenue WQARF Site, such that the supply of water available to the affected water provider is not reduced. Abandoning COG-01 after two sampling events, however, does not meet the statutory requirement. Avondale requests that ADEQ work in cooperation with the affected water provider(s) to identify appropriate measures to restore, replace or otherwise provide for their impacted water supply and incorporate those measures into the Western Avenue Remedial Action Plan prior to finalization."

ADEQ Response: The only groundwater monitor well at the Site that had consistently produced groundwater containing PCE concentrations greater than the AWQS/MCL was MW-1. The only drinking water supply well located down gradient of MW-1 is the City of Goodyear well COG-01. Additionally, the concentration of PCE detected in groundwater collected from MW-1 in 2017 was 1.8 µg/L, well below the AWQS/MCL for PCE. It is unlikely that any other City of Goodyear or City of Avondale wells will be impacted by residual PCE concentrations greater than the AWQS/MCL originating from the Site. However, in the unlikely event that City of Goodyear or City of Avondale wells are impacted by the Site; ADEQ will work in cooperation with the cities to identify appropriate measures to address the problem.

Appendix A

PART II

Revised PRAP Comment Period

In accordance with A.A.C R18-16-404 and 408, notification of the availability of the Revised PRAP for public comment was published in the West Valley View, Avondale and Goodyear, Arizona on October 7, 2014. The public comment period began on October 7, 2014 and ended on November 5, 2014.

Comments received during the public comment period are presented below and are followed by ADEQ's response. Comments are organized as follows:

Comment Number	Source	Method
1	The City of Goodyear Arizona	Written
2	Quarles & Brady on behalf of Crane Company	Written

Written Comments

The City of Goodyear Arizona submitted two comments:

City of Goodyear Comment 1. As previously stated in our comments dated June 23, 2014, the City is deeply concerned regarding potential impacts to our production well COG-01 which is integral to the City's water delivery system. We appreciate that ADEQ has provided more clarity on what steps will be taken if COG-1 exceeds the AWQS in the future. We are pleased that ADEQ will develop a response plan (Item 2, page 23) however, the City requests that more detailed information on the confirmation sampling after the initial exceedance be provided. Items such as timing between initial sampling and confirmation sampling and, the conditions which the well is sampled, such as, actively pumping or a pump idle/start-up to sample scenarios would be helpful. We suggest adding language in Item 2, page 23 as follows: "A confirmation sample will be collected from COG-01 within 24 hours of becoming aware that there was an exceedance of an AWQS and that the confirmation sample be analyzed on a 24-hour turn around". Please specify under what pumping conditions the sampling events will take place.

ADEQ Response: PCE concentrations in all of the Western Avenue monitoring wells have been below the AWQS/MCL since 2016. Based upon PGAS and PGAN monitor well data, residual Site PCE contamination has migrated west and downgradient of COG-01. The Site remedy has been modified from the PRAP such that a response plan is no longer included due to the lack of concentrations of PCE exceeding AWQS/MCL upgradient of well COG-01.

City of Goodyear Comment 2. In addition from our previous comments (6/23/14) and to be consistent with the City's Superfund policy and agreements, the City would like to be assured that if the well is compromised ADEQ will provide a replacement well at the existing location or a new location (greater than 660 feet from the existing site). The City requests that ADEQ obtain a pre-approval from the Director of the Arizona Department of Water Resources to move the well greater than 660 feet if necessary. The City also requests that ADEQ provide the City with a Capital Improvement Plan ensuring that the funds will be available to replace the well. The City requests that well replacement strategy be a part of the final Remedial Action Plan.

ADEQ Response: Please see the previous response to comment.

Appendix A

Quarles & Brady on behalf of Crane Company submitted the following three comments:

Quarles & Brady Comment 1. Cover Letter, Paragraph 3: "Specifically, as stated in detail in the Technical Comments, AMEC and Matrix and hence, Crane Co., are concerned that ADEQ has not identified the source or sources of the tetrachloroethene (PCE) contamination at the Western Avenue Site and also has not fully characterized the horizontal and vertical extent of the PCE contamination in the groundwater. Further, the existing monitoring well network still is not sufficient to accurately monitor and define the PCE plume. The Revised PRAP does not address these concerns. Accordingly, the Monitored Natural Attenuation (MNA) remedial alternative selected in the Revised PRAP continues to be premature and additional site characterization and groundwater monitoring continue to be needed before an appropriate remedial alternative can be selected and implemented".

ADEQ Response: Please refer to ADEQ's response in Part I to Quarles & Brady's comments 1 and 2 above.

Quarles & Brady Comment 2. Cover Letter, Paragraph 4: "Crane Co. believes it is necessary for ADEQ to conduct such additional investigation to identify the source(s) of the PCE contamination and to fully characterize the extent of such contamination to avoid any future issues about responsibility for any such PCE contamination that may migrate to and affect groundwater at or in the vicinity of the PGA-North Site. No new data or other information obtained since Crane Co submitted its prior comments on June 23, 2014 exist that alters or affects that conclusion".

ADEQ Response: Please refer to ADEQ's response in Part I to Quarles & Brady's comments 1 and 2 above.

Quarles & Brady Comment 3. Cover Letter, Paragraph 5: "Accordingly, Crane Co. continues to be concerned that because of the incomplete site characterization work at the Western Avenue Site and deficiencies that continue to exist in the current Western Avenue Site monitoring network, the proposed MNA remedy creates the potential for further unmonitored and uncontrolled PCE migration to the PGA-North Site. As Crane Co. has stated on numerous occasions, in the event that any such unmonitored and uncontrolled PCE migration to the PGA-North Site occurs, Crane Co. will look to ADEQ for sole responsibility to address any such PCE impacts at the PGA-North Site. Again, to be clear, Crane Co. is not and will not be responsible in any fashion for PCE contamination emanating from the Western Avenue Site.

ADEQ Response: Please refer to ADEQ's response in Part I to Quarles & Brady's comments 1 and 2 above.